ORIGINAL FILE

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of

Advanced Television Systems
and Their Impact on the
Existing Television Broadcast Service

Review of Technical and
Operational Requirements:
Part 73-E, Television Broadcast Stations

Reevaluation of the UHF Television
Channel and Distance Separation
Requirements of Part 73 of the
Commission's Rules

MM Docket No. 87-268

Reply Comments of the Del Rey Group, Inc.

The Del Rey Group wishes to include in the record the following Reply Comments:

1. It appears that respondents are maintaining their earlier positions, and no sweeping consensus is occuring at this time. However, this is to be expected, since no one has yet had the opportunity to directly compare the images delivered by the various transmission schemes. It is still early in the ball game.

2. We continue to believe that the only practical transmission format will involve a compatible, single-channel protocol. The environment is simply too complex for any other system to be readily implemented. But we do not see the constraints of compatibility and single-channel operation to be serious shortcomings. In fact, we continue to believe that the transmission protocol eventually settled upon will have characteristics strikingly similar to our current proposal called HD-NTSC™, and less like the characteristics of the other compatible single-channel proposals-- NBC/Sarnoff's ACTV-I,

Faroudja's SuperNTSC, NHK's Muse-6, and Schreiber's MIT-RC. To be specific, vertical and horizontal subsampling will be employed to double static spatial resolution, and a mild form of letterboxing will deliver a wide aspect ratio without any of the problems associated with "side panels", such as seam visibility and the windowing effect.

3. We categorically reject the notion that the ATV signal must be intentionally incompatible in order to be commercially practical, as Schreiber suggests. We find it remarkable that some recommend discarding NTSC rather than making the major improvements now possible with inexpensive digital signal processing technology.

4. As we suspected, the LPTV community is very nervous about multichannel transmission protocols (see "Comments of Channel America LPTV Holdings, Inc.). True, LPTV is classified as a secondary service, but do we honestly think the incremental benefit gained by multichannel HDTV protocols is worth eliminating an entire service category, one which in many instances is targeted to specific special interest groups? That is a legal and political football we doubt anyone will want to carry.

5. Regarding HDTV Production or Studio formats, the Del Rey Group has always taken the position that it was much more important to focus on the Transmission question, because settling that question will automatically target the optimum studio format. It is partly because of this familial relationship that system proponents in the United States have opposed the NHK 1125 studio format--it happens to work very well with Muse, but needs additional processing to work with other formats. We were therefore disappointed when NBC/Sarnoff began their strong push for a 1050 studio format several months ago. The Sarnoff Comments mention that a 1050 format dovetails beautifully with their ACTV transmission format. They forgot to mention that it does *not* dovetail with a number of other competing systems, including our own HD-NTSC protocol. We reject this attempt by NBC/Sarnoff to "lock in" a particular transmission system. Attached to this response is a Del Rey Group Press Release rejecting this attempt.

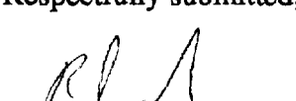
Indeed, the ideal Production Format is one which works with any transmission system. Such a format was proposed by the Del Rey Group at the fall SMPTE Conference. The new format, called HD-PRO™, offers characteristics very similar to current 35mm film practice, and should therefore find applicability not only in the United States but also in Japan and Europe. Further discussion of HD-PRO is outside the scope of these reply comments, but a copy of the SMPTE paper is available either from SMPTE or from the Del Rey Group.

6. Glenn states that the maximum theoretical spatial resolution for a single-channel system is in the range of 450-550 lines per picture height (comments of NYIT, page 12, paragraph 2). That is not our experience. TriScan™ subsampling as employed in our HD-NTSC protocol tops out at about 700 lines per picture height, vertical and horizontal. In theory, one could subsample even further to achieve higher numbers, but then integration time would become a significant factor.

7. Sarnoff mentions that television relay links will involve substantial changes from current practice (Comments of David Sarnoff Research Center, pages 18-19). They state that "*even 6 Mhz channel compatible emission formats (such as Sarnoff ACTV-E, ACTV-I, Zenith or MIT-BE contain signals that are likely to be incompatible with the bandwidth and signal modulation techniques used for FM-based video relay services (i.e., satellite & STL).*" We agree completely, except that Sarnoff failed to include HD-NTSC, which theoretically **would not require any changes**. This distinction between HD-NTSC and other transmission protocols extends into other areas, including the studio environment.

8. Two years ago, the Del Rey Group consisted of a desk, a telephone, a Macintosh computer, and an idea. Today the Del Rey Group /Compatible Video Consortium is considerably more capable, but we are still much smaller than most of the other transmission system proponents. In such a lopsided competition, efforts to quickly conclude the selection process will automatically favor the larger organizations. We strongly agree with Glenn that the HDTV selection process has taken on the characteristics of a gladiatorial bout, and that is an inappropriate model to follow. Our repeated requests from the well-funded proponents for development assistance have been flatly rejected. We therefore urge the Commission's patience while we bootstrap our operations up with the help of additional industry funding.

Respectfully submitted,



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Del Rey Group Rejects NBC 1050 Production Format Family as Inadequate, Premature, and Self-Serving

1 November 1988
Marina del Rey, California
FOR IMMEDIATE RELEASE

The Del Rey Group announced today that they will not be endorsing the 1,050 line format that NBC plans to submit to an industry committee as a possible American production standard. Mr. Iredale, the founder of the Del Rey Group, cited several reasons for the rejection:

"First, the NBC announcement has created more confusion on the HDTV scene by proposing not just one but three new signal formats, and some fear that such confusion will only serve to guarantee that nothing at all will occur for many years. What is needed instead is a clear, concise direction for industry to follow, not a hodgepodge of compromised signals.

He added, "We are greatly concerned that adoption of a 1050 line format for production would put program producers in this country at a serious disadvantage in marketing their products abroad. A 1050 line format employs only about 970 active scanning lines, below the 1,000 line figure often quoted as being the *minimum* acceptable quality for an HDTV production format. When compared to the 1,125, 1,250, or 1,500 line counts of alternative formats, 1,050 doesn't just mean 'second best', it means 'last place'.

"Secondly, NBC apparently agrees that a 1,050 format is inappropriate for global use, but justifies it's position by stating that hope for a single international video production standard is dead, a conclusion with which we fundamentally disagree. Just last week in Canada the CCIR issued a report that was rather encouraging on this point."

"Thirdly, even if we ignore production aspects and just consider the studio environment, we believe the choice of a 1,050 line format is self-serving, since it tends to favor transcoding into NBC's ACTV transmission format at the expense of other competing formats such as our HD-NTSC single-channel

system or even the Muse system." Mr. Iredale added that the first two formats of the proposed 1,050 family would not even offer enough picture sharpness for HDTV transmission to the home. Yet, according to Mr. Iredale, "The proposed third member of the family would ironically represent so much overkill it would result in extremely expensive equipment, contrary to NBC's stated objective of offering a low-cost migration path for American broadcasters. Let's stop playing games here and first concentrate on the development of the very best transmission format we can. Once that's done, the choice of an appropriate studio format will be obvious."

Mr. Iredale has been a speaker and panelist at numerous technical conferences and his papers have appeared in a number of industry journals. He is the head of a multicompany effort developing the HD-NTSC transmission format currently under consideration by the FCC, and was invited to testify last year regarding HDTV before the House Telecommunications and Finance Subcommittee in Washington, D.C.

For further information contact the Del Rey Group at (805) 379-3395.

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Canadian Broadcasting Corporation to provide Development Assistance to North American HDTV Project

Monday 12 December 1988
FOR IMMEDIATE RELEASE

It was officially disclosed today that the Canadian Broadcasting Corporation has agreed to provide technical assistance to the newly-formed Compatible Video Consortium L.P. Actual terms of the relationship were not released.

According to Mr. Richard J. Iredale, founder of the Del Rey Group (Marina del Rey, California) and General Partner of the Consortium, the CBC has assigned one of its engineers to take on the role of Project Manager for the Consortium. Mr. Iredale stated "Over the years the CBC has earned a reputation for excellence in the area of broadcast technology, and has also become a leader in the discussions of HDTV production and transmission issues. They were among the first to apply HDTV technology to practical use when they produced the 14-hour minifeature *Chasing Rainbows*, shot in Canada last year entirely with HDTV equipment. We are indeed fortunate to have the CBC's assistance in our activities."

The CBC engineer assigned to the Consortium effort is Mr. Michel Durocher, P. Eng., of the Strategic Engineering Department. Mr. Durocher has had extensive involvement in both broadcast and HDTV matters, and recently was Chairman of the Spectrum Working Group of the Canadian Advanced Broadcast Systems Committee (CABSC).

The Compatible Video Consortium was established in 1988 as a funding vehicle for the development of a compatible HDTV transmission system. Other partners include Cox Enterprises (Atlanta), Tribune Broadcasting (Chicago), and Westinghouse Broadcasting Company (New York). The primary focus at this time is the further development of the Del Rey Group's HD-NTSC™ transmission proposal, which offers the potential of full HDTV performance over a single TV channel, without the need for additional augmentation or simulcast channels. Says Mr. Iredale, "HD-NTSC was introduced in conceptual form a little over two years ago. Since then we have been highly encouraged by early computer simulations of HD-NTSC conducted at the INRS (*Institut National de la Recherche Scientifique*) in Montreal. Our immediate objective is to build a demonstration system based on the results of those computer simulations."

Mr. Iredale concluded by stating "The involvement of the CBC in the Consortium's efforts underscores our belief that Canada and the United States should work together to develop an HDTV system appropriate for all of North America. After all, borders don't exist for television signals."

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Del Rey, NHK meet to discuss Joint Development of compatible HDTV Transmission System

Friday, 14 October 1988
Marina del Rey, California
FOR IMMEDIATE RELEASE

A meeting to discuss possible working relationships for the development of a compatible HDTV transmission system for the North American environment took place this week in Tokyo between the Del Rey Group and NHK, according to Richard J. Iredale, founder of the Del Rey Group.

NHK (Japan Broadcasting Corporation) has been a leading technology center for high definition television with an impressive list of achievements. In 1980 NHK first described a scanning system using 1,125 interlaced lines, and a version of that format was recently adopted as a SMPTE standard. In 1984 a bandwidth compression system known as Muse was announced which was able to send an HDTV signal over a direct broadcast satellite link with little degradation. Last fall NHK announced other variants of Muse aimed more specifically at compatibility with conventional TV sets and channel allocations in North America.

The Del Rey Group first introduced its HD-NTSC™ transmission system proposal at the 1986 fall SMPTE Conference in New York, and has since been gathering support from the broadcast and cable industries. HD-NTSC is a single channel system that offers the promise of HDTV quality to a new generation of TV sets while maintaining compatibility with conventional sets. In February of this year the Del Rey Group was joined by Cox Enterprises (Atlanta) and Tribune Broadcasting (Chicago) in forming the Compatible Video Consortium. Group W also recently announced financial support for Del Rey's HD-NTSC system.

Said Mr. Iredale, "One purpose of our meeting was to more fully flesh out those areas we had in common. HD-NTSC and Muse are similar in some respects, and we wanted to determine the feasibility of merging the best of each in order to create a common transmission protocol that best met the needs of the North American environment. The best solution to the dilemma facing the industry at present will be one which draws upon the particular strengths of each participant, and it is possible the Compatible Video Consortium could act as the catalyst for this to happen. NHK should be warmly congratulated for its willingness to discuss a closer working relationship with the Consortium."

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New HDTV Production Format Announced

14 October 1988
Marina del Rey, California
FOR IMMEDIATE RELEASE

A new high definition television production format was announced today by Richard J. Iredale, founder of the Del Rey Group, a research organization located in Southern California. Claimed to be the first format since 35mm film to be truly practical as a worldwide exchange medium, the new technology, dubbed HD-PRO™ by its creators, offers the promise of reuniting Japanese, American, and European HDTV activities by delivering equal benefits to all. Said Mr. Iredale this morning, "For several years now the worldwide HDTV development effort has been going through an inefficient fragmentation process. We are introducing the HD-PRO concept in an effort to help the industry get back on track."

Details of HD-PRO are to be described at the fall SMPTE Conference in New York during the October 17th session on Advanced Television Production Systems. According to Mr. Iredale, the technology is very similar to another HDTV format that has been the source of great controversy. "Basically, HD-PRO builds upon the 1125/60 format that was originally championed by NHK Laboratories in Japan. That format has gone on to become an official standard, called SMPTE 240M, but it was approved by the narrowest of margins and has already been rejected by our European neighbors. HD-PRO starts with many of the key parameters of 240M but employs a few new features that we hope will make it more appealing to Europe and also to the Hollywood production community, which to date has generally regarded the 1125/60 standard with mixed emotions."

When asked about the likely reaction from the Japanese community, Mr. Iredale responded, "I hope they find our proposal interesting. It is based in large measure upon the excellent research that they have conducted in the past, but repackaged in a form that we hope will help bridge the gaps to both Hollywood and Europe. We have the greatest respect for our friends at NHK. We wish to be viewed simply as fellow engineers working towards a common objective. That objective is a truly global HDTV production medium that will serve to unite, not tear apart."

For additional information please contact the Del Rey Group at (805) 379-3395.